## **CLAIMS**

What is claimed is:

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A method of switching a packet, the method comprising:

- computing a tag for the packet;
- looking up the tag in a table, the table comprised of entries, the entries
- 4 associating switching information with a tag; and
- 5 using switching information associated with the tag in the table to switch the
- 6 packet if there is an entry for the tag in the table.
- 1 2. The method of claim 1, wherein the switching further comprises determining
- 2 the switching information if there is no entry for the tag in the table, and the
- 3 determining comprising sending the packet to a system with resources for routing a
- 4 packet and determining switching information.
- 1 3. The method of claim 2, further comprising updating the table to include an
- 2 entry for the tag with switching information responsive to the determining.
- 1 4. The method of claim 2, further comprising including an entry in the table for
- 2 the tag associated with a switching instruction indicating that packets should be
- 3 dropped until the determining is complete.

The method of claim 1, wherein the entries in the table are removed if a the tag corresponding to the entry has not be looked up in a predetermined period.

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- 1 6. The method of claim 5, wherein the length of the tag is determined by the
- 2 predetermined period, the number of entries in the table, and the probability of two
- 3 packets generating the same tag.
- 1 7. The method of claim 1, wherein a plurality of tags are generated for the
- 2 packet, the plurality of tags corresponding to a plurality of flow detectors.
- 1 8. The method of claim 7, wherein a plurality of tables are maintained, each
- 2 table corresponding to one of the flow detectors.
- 1 9. The method of claim 7, wherein each of the tags in the plurality of tags
- 2 includes information about the associated flow detector.
- 1 10. The method of claim 7, wherein an error rate of the method is measured
- 2 based on the number of matches between tags in the table without regard to which
- 3 flow detector is associated with a tag.
- 1 11. The method of claim 10, wherein a warning is issued when the error rate
- 2 exceeds a predetermined level.
- 1 12. The method of claim 10, wherein the predetermined period for which entries
- 2 in the table are retained without being looked up is decreased when the error rate
- 3 increases above a predetermined level.

- 1 13. The method of claim 10, wherein the predetermined period for which entries
- 2 in the table are retained without being looked up is increased when the error rate
- 3 decreases below, a predetermined level.
- 1 14. The method of claim 7, wherein the plurality of tags are computed in parallel
- 2 by the plurality of flow detectors.
- 1 15. The method of claim 7, wherein each of the plurality of tags computed by the
- 2 plurality of flow detectors are the same length.
- 1 16. The method of claim 7, wherein the plurality flow detectors are associated
- with a priority, and wherein the switching occurs according to the priority of the
- 3 flow detector.
- 1 17. The method of claim 7, wherein the error rate of the switching system is
- 2 measured based on the number of cross flow detector tag matches in the table.
- 1 18. The method of claim 1, wherein the computing further comprises using a
- 2 mask of bits of the packet as a seed for a hash code generator.
- 1 19. The method of claim 18, wherein the hash code generator is a pseudo random
- 2 number generator.
- 1 20. The method of claim 18, wherein the hash code generator is a shift register
- with a feedback loop.

- 1 21. The method of claim 18, wherein the hash code generator has a non-zero
- 2 probability of generating the same tag from different input packets.
- 1 22. The method of claim 18, wherein the length of the tag is determined by the
- 2 probability of the hash code generator producing the same hash code from different
- 3 input packets.

ο 40 1 23.	A method comprising:
1/2	computing a tag for a packet;
3	looking up the tag in a table, the table comprised of entries, the entries
4	associating information about the flow with tage;
5	updating information about the flow associated with the tag if there is an
6	entry for the tag.;
7	creating a new entry in the table if there is no entry for the tag;
8	removing entries that have not been accessed for a predetermined period
9	from the table.
	3 4 5 6 7 8

- 1 24. The method of claim 23, wherein the creating further comprises storing data
- 2 extracted from the packet in the entry.
- 1 25. The method of claim 24, wherein the data includes billing information for the
- 2 packet.

- 1 26. The method of claim 24, wherein the packet is sent to a system with
- 2 resources for analyzing the packet and determining billing information to be
- 3 associated with the entry for the tag.
- 1 27. The method of claim 23, wherein the removing further comprises transferring
- 2 the data associated with a tag to a system with resources for storing information.
- 1 28. The method of claim 23, wherein the computing further comprises using a
- 2 mask of bits of the packet as a seed for a hash code generator.
- 1 29. The method of claim 28, wherein the hash code generator is a pseudo random
- 2 number generator.
- 1 30. The method of claim 28, wherein the hash code generator is a shift register
- with a feedback loop.
- 1 31. The method of claim 28, wherein the hash code generator has a non-zero
- 2 probability of generating the same tag from different input packets.
- 1 32. The method of claim 28, wherein the length of the tag is determined by the
- 2 probability of the hash code generator producing the same hash code from different
- 3 input packets.